

METHODS FOR DETERMINING NUCLEOTIDE SEQUENCE INFORMATION**ABSTRACT OF THE DISCLOSURE**

Provided herein, is a nucleic acid sequencing method based on detection of Raman signatures of oligonucleotide probes. Raman signatures of individually captured nucleic acid probes, optionally labeled by a Raman label or a positively charged enhancer, are detected. The sequences of captured probes are used to identify the nucleotide sequences of captured probes and complementary target nucleic acids, which are then aligned and used to obtain nucleic acid sequence information. In another embodiment, a method is provided for determining a nucleotide occurrence at a target nucleotide position of a target nucleic acid, that utilizes binding of the target nucleic acid to a labeled oligonucleotide probe that binds to the target nucleic acid, wherein the labeled oligonucleotide probe includes a first label and a second label, the first label being capable of affecting an optical property of the second label.